Formation and Evolution of Planetary Systems: Placing Our Solar System in Context

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Formation and Evolution of Planetary Systems (FEPS) Collaboration

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We present results from the Formation and Evolution of Planetary Systems (FEPS) Spitzer Legacy Science Program. FEPS utilizes Spitzer observations of 336 sun-like stars with ages from 3 Myr to 3 Gyr in order to construct spectral energy distributions (SEDs) from 3-160 microns. The SEDs yield constraints on the geometric distribution and mass of circumstellar dust disks as a function of stellar age. Our main goals are to study the transition from primordial to debris disks at ages < 100 Myr, determine the lifetimes of gas-rich disks in order to constrain theories of Jupiter-mass planet formation, and explore the diversity of planetary architectures through studies of the range of observed debris disk systems. We will report on our latest findings including: 1) the lifetime of inner disks emitting in the IRAC bands from 3-8 microns from 3-30 Myr; 2) SEDs and spectra from IRS observations of a few unusual systems; and 3) physical properties of old, cold debris disk systems detected with the MIPS instrument on Spitzer Space Telescope.